Hyponatremia

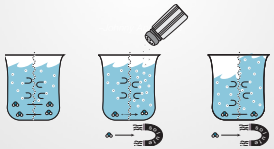
False hyponatremia

True hyponatremia

Low serum sodium concentration associated with

- ➡ low osmolality
- ➡ low tonicity

causes water to move into the cells



False hyponatremia

Low serum sodium concentration associated with

- ➡ normal or high osmolality
- ➡ normal or high tonicity

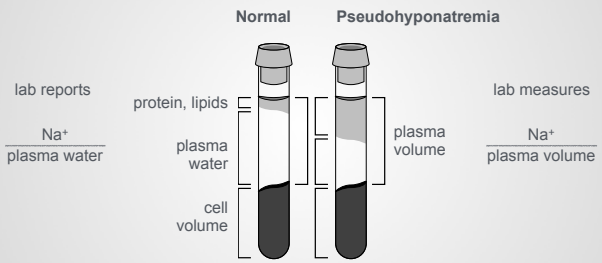
Does NOT causes water to move into the cells

False hyponatremia

- Water does doesn't move into the cells
- Water doesn't move at all **Pseudohyponatremia**
- Water moves out of the cells **Factitious hyponatremia**

False hyponatremia **Pseudohyponatremia**

- **Osmolality and tonicity are normal**
- lab measurement error from an increase in:
  - immunoglobulin
  - lipids



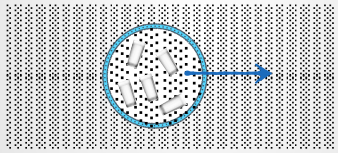
False hyponatremia **Pseudohyponatremia**

- Hyperlipidemia
- Increased protein
  - multiple myeloma
  - IVIG
- Modern lab equipment with direct ion detection are not susceptible to this error

False hyponatremia

- Water does doesn't move into the cells
- Water doesn't move at all **Pseudohyponatremia**
- Water moves out of the cells **Factitious hyponatremia**

False hyponatremia Factitious hyponatremia

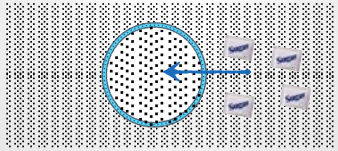


False hyponatremia Factitious hyponatremia

- Hyperglycemia
- Mannitol
- Glycine

False hyponatremia Factitious hyponatremia

Hyperglycemia in the presence of insulin doesn't move water.
Glucose in the presence of insulin is an ineffective osmole.



False hyponatremia Factitious hyponatremia

For every 100 mg/dL the blood sugar rises over 100 the serum sodium falls 1.6 mmol/L

serum sodium 128 + = 133 adjusted sodium

blood sugar of 400

3 x 1.6 = 4.8

100's above 100